Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	
Expanding Flexible Use of the 3.7 GHz to 4.2 GHz Band	GN Docket No. 18-122
Petition for Rulemaking to Amend and Modernize Parts 25 and 101 of the Commission's Rules to Authorize and Facilitate the Deployment of Licensed Point-to-Multipoint Fixed Wireless Broadband Service in the 3.7-4.2 GHz Band	RM-11791
Fixed Wireless Communications Coalition, Inc., Request for Modified Coordination Procedures in Band Shared Between the Fixed Service and the Fixed Satellite Service	RM-11778

COMMENTS OF ALASKA COMMUNICATIONS INTERNET, LLC

Alaska Communications Internet, LLC ("Alaska Communications") hereby responds to the Public Notice released July 19, 2019 by the International Bureau, Office of Engineering and Technology, and Office of Economics and Analytics seeking comment on recent *ex parte* filings concerning transition and sharing mechanisms for introducing new terrestrial "5G" mobile services in the 3.7-4.2 GHz band.[1]

[1] Public Notice, GN Docket No. 18-122, RM-11791, RM-11778, "Wireless Telecommunications Bureau, International Bureau, Office of Engineering and Technology, and Office of Economics and Analytics Seek Focused Additional Comment in 3.7-4.2 GHz Band Proceeding," DA 19-678 (rel. July 19, 2019) ("Public Notice"). The Public Notice seeks focused comment on *ex parte* proposals from: (1) a coalition of ACA Connects – America's Communication Association, Competitive Carriers Association, and Charter Communications, Inc. (the "ACA Connects Coalition"); (2) AT&T Services, Inc., (the "AT&T Letter"), transmitting a study prepared by CommScope (the "CommScope Study"); and (3) a coalition of the Wireless Internet Service Providers Association ("WISPA"), Google LLC, and Microsoft Corp. transmitting a study prepared by Reed Engineering (the "Reed Study"). Because AT&T's CommScope Study and the Reed Study are primarily concerned with the basis and process for partitioning the 3.7-4.2 GHz band for terrestrial 5G use, and because Alaska Communications continues to believe that Alaska should be excluded from any such partition, these comments focus on the ACA Connects Coalition.

Introduction

The proposal from the ACA Connects Coalition is simply unworkable in Alaska, as the proponents themselves acknowledge. The ACA Connects Coalition essentially proposes to clear "at least" 370 MHz of C-band spectrum by requiring multichannel video program distributor ("MVPD") users and programmers to shift their distribution of video programming from C-band satellite platforms to terrestrial fiber connections, and relocating the remaining C-band satellite industry providers and users to a small portion of the 3.7-4.2 GHz band. Transition costs would be paid from the proceeds of an auction of terrestrial "5G" mobile licenses in the reallocated portion of the band.[2]

In this proceeding, Alaska Communications has consistently urged the Commission to maintain the existing allocation of this spectrum exclusively to satellite downlink (space-to-Earth) and fixed point-to-point microwave services.[3] Alaska should be excluded from any reallocation of this spectrum to terrestrial 5G mobile services because (1) Alaska lacks terrestrial alternatives to the C-band satellite communications platform to connect Alaska's rural and remote communities; (2) C-band satellite communications are more reliable, plentiful, and cost-effective than those using Ku-, Ka-, or other higher frequency bands; and (3) terrestrial "5G" services can be deployed in Alaska, if at all, within existing mobile spectrum allocations. These Comments discuss each of these points in the context of the recent *ex parte* proposals.

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[2] *Ex Parte* letter from ACA Connects – America's Communication Association, Competitive Carriers Association, and Charter Communications, Inc., GN Docket No. 18-122 (filed July 2, 2019) at 4-5 ("ACA Connect Coalition Proposal").

[3] *See, e.g., Ex Parte* Letter from Richard R. Cameron, Counsel to Alaska Communications, GN Docket No. 18-122 (filed June 21, 2019); Reply Comments of Alaska Communications Internet, LLC, GN Docket No. 18-122 (filed Dec. 11, 2018) ("Alaska Communications Reply Comments"); Comments of Alaska Communications Internet, LLC, GN Docket No. 18-122 (filed Oct. 29, 2018) ("Alaska Communications Comments").

A. Alaska Lacks Terrestrial Alternatives to C-band Satellite Connectivity

Alaska Communications emphatically agrees with the ACA Connects Coalition that "fiber delivery is not a possible solution for remote areas of Alaska" and thus "[s]uitable alternative solutions must be made available for incumbent C-Band operators who provide critical services throughout the State."[4] As the AT&T Letter acknowledges, "there is little, if any, dispute that FSS and terrestrial mobile services are not compatible as co-channel uses" in the 3.7-4.2 GHz band,[5] meaning that any viable alternative would need to be found elsewhere.

Unfortunately, there is no viable alternative to C-band satellite connectivity in much of Alaska. Alaska has a population of about 740,000 people, only slightly greater than that of the District of Columbia. yet the state encompasses about 1/6 of the nation's land area, larger than 22 other states combined.[6] Outside of the state's three population centers, Anchorage, Fairbanks, and Juneau, the state's population density falls to about one person for every two square miles.[7] Of Alaska's 162 communities, some 86 percent are not connected to the state's road system.[8] These Bush communities are isolated geographically from infrastructure resources commonly available elsewhere in the state, and the nation as a whole. Most Bush communities cannot be

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4 *Id.* at 4, n.1.

5 AT&T Letter at 2-3.

6 *See* United States Census Bureau, "Population, Housing Units, Area, and Density: 2010 - United States--States and Puerto Rico," *available at:* https://www.census.gov/quickfacts/fact/note/US/LND110210 (visited Aug. 7, 2019) (showing the area of Alaska is greater than that of North Carolina, New York, Mississippi, Pennsylvania, Louisiana, Tennessee, Ohio, Virginia, Kentucky, Indiana, Maine, South Carolina, West Virginia, Maryland, Vermont, New Hampshire, Massachusetts, New Jersey, Hawaii, Connecticut, Delaware, Rhode Island – and the District of Columbia – combined).

7 *Id.*

8 Alaska Department of Commerce, *Alaska Mapping Business Plan: Integrating Mapping, Assessment, and Resilience Planning* (Sept. 2018), Appendix 2: "An Overview of Communities in Alaska," at 52 (*available at:* https://www.commerce.alaska.gov/web/dcra/PlanningLandManagement/RiskMAP/AlaskaMappingBusinessPlan.aspx).

accessed by road, nor are they connected to the state's power grid or communications network. To reach these communities, people, as well as goods and services, must arrive by plane, barge, snow machine, all-terrain vehicle, or other off-road transportation means. Their populations range from a few dozen to a few thousand individuals.

Communications services in these remote Alaskan villages, often Alaska Native communities, generally must rely on satellite or capacity-constrained terrestrial point-to-point microwave transport links to Anchorage, Fairbanks, or Juneau, where they can interconnect with the state's communications networks and undersea cables connecting Alaska to the lower 48 states. These villages' small populations, remote locations in roadless wilderness, harsh northern climate, and forbidding topography mean that it is logistically and economically prohibitive to deploy scalable terrestrial fiber to connect them to national and global communications networks.[9]

Moreover, at between two and three times the cost of equivalent satellite bandwidth, the cost of terrestrial middle mile backhaul capacity in much of the Alaska Bush is simply unaffordable, even where it is available.[10] Despite providing the state's small rural rate-of-

[9] For a detailed discussion of the challenges of constructing fiber optic facilities in the Alaska Bush, *see* Environmental Assessment, TERRA Southwest Broadband Telecommunications Project (April 2011) (discussing logistical and environmental challenges of constructing telecommunications facilities in southwest Alaska and rejecting a 100% fiber alternative proposal), *available at:* https://www.gc.noaa.gov/documents/alaska-eis.pdf; Brian "Butch" Webb and Zachary Casey, "Shore Approaches for Fiber Optic Cables in Arctic Construction," *Underground Construction* (Mar. 2017) (discussing challenges of deploying undersea fiber optic cables in Alaska, and the use of specialized horizontal directional drilling techniques required in the Arctic, because "the known risk from deep ice scour in shallow water would require burial depths that are unachievable with standard methods. Additionally, the large volume of material removed and the consequent stockpiling of the spoil presents an environmental problem in the Arctic that is not acceptable."), *available at:* https://ucononline.com/magazine/2017/march-2017-vol-72-no-3/features/shore-approaches-for-fiber-optics-cable-in-arctic-conditions.

[10] The Commission has previously taken note of the unusual case of the Alaska Bush, where terrestrial connectivity is more expensive than equivalent satellite bandwidth. *See Promoting Telehealth in Rural America*, WC Docket No. 17-310, Draft Report & Order, FCC-CIR1908-03 (rel. July 11, 2019), at ¶ 84 ("[I]n Alaska for funding year 2017, health care providers reported, on the FCC Form 466,

return local exchange carriers and wireless service providers with roughly $1 billion in explicit high cost universal service support under the "Alaska Plan," the cost of terrestrial broadband services remains economically prohibitive. For example, in response to a direct question from the Wireline Competition Bureau, TelAlaska' Mukluk Telephone Company recently explained that, "middle mile transport pricing using the TERRA network [covering much of western Alaska] is not economically affordable at this time . . . . As an example, the community of Shaktoolik census data shows there are 70 residential households. If all 70 households were to subscribe to Mukluk broadband, the cost of middle mile transport alone would be $1,824 per household per month. Mukluk finds this cost point is not affordable and continues to search for access to new fiber or hybrid microwave/fiber middle mile facilities at an affordable cost point to increase broadband availability throughout its study area."[11] Similarly, OTZ has noted that it is constrained in its ability to offer affordable broadband, explaining that, "[d]ue to high cost of middle mile transport, broadband speeds are not affordable to most of OTZ's customers."[12]

B. For Satellite Communications, the C-band Is Superior to Other Bands in Alaska

Not only does Alaska lack terrestrial alternatives to C-band satellite connectivity, but C-band satellite services are more reliable, plentiful, and cost-effective than those using Ku-, Ka-,

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rural rates ranging from $30,000 to $40,500 for a 10 Mbps satellite service per month. In comparison, rural rates for a terrestrial-based 10 Mbps MPLS service in Alaska, in many instances, were between $60,000 and $75,000 per month." (*available at:* https://docs.fcc.gov/public/attachments/DOC-358434A1.pdf). This Draft Order is slated for consideration at the Commission's August 1, 2019 Open Agenda Meeting.

[11] *Ex Parte* Letter from David J. Goggins, President and General Manager, TelAlaska, Inc., WC Docket No. 16-271 (filed June 7, 2019), at 1; *see also* GCI, "TERRA Product Descriptions and Pricing," eff. May 17, 2019 (*available at:* https://www.gci.com/-/media/files/gci/regulatory/20190517gciterrapostingeffective.pdf).

[12] *Ex parte* Letter from Christine O'Connor, Alaska Telephone Association, WC Docket No. 10-90 (filed May 9, 2016), at 18.

or other higher frequency bands. The advantages of C-band satellite service as compared to other satellite bands, are well-documented in this proceeding. In earlier filings in this docket, for example, Alaska Communications has detailed the superior performance of C-band at Alaska's high northerly latitudes, particularly in the poor weather conditions and heavy precipitation that are all too common in the state.[13] As Alaska Communications explained in those filings:

- C-band satellite coverage is plentiful in Alaska, as a result of the large footprint offered by C-band satellite beams. Ku-band and Ka-band satellites often employ spot beams that are targeted to more economically important markets, such as large cities in the lower 48 states or transoceanic transport corridors. In higher frequency bands, a spot beam may be aimed toward Anchorage at best, with any additional coverage merely incidental to that target.[14]

- C-band frequencies support superior performance at the low elevation angles required as a result of Alaska's high northerly latitude, where earth station antennae often must be pointed lower than 10 degrees above the horizon.[15]

- C-band frequencies suffer far less attenuation from poor weather conditions ("rain fade") and other obstructions than services that rely on Ku-, Ka-, or other higher bands. The low elevation angles required in Alaska make satellite service more sensitive to these attenuation issues, even from distant precipitation occurring along the line of sight to the satellite, than locations where the satellite is higher overhead.[16]

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[13] *See* Alaska Communications Internet, LLC, Section 1.65 Letter, File No. SES-MOD-20180626-01472 (filed July 25, 2019), at 1-2; Alaska Communications Internet, LLC, Section 1.65 Letter, File No. SES-MOD-20180626-01472 (filed July 9, 2019), at 1-2; *Ex Parte* Letter from Richard R. Cameron, Counsel to Alaska Communications, GN Docket No. 18-122 (filed June 21, 2019), at 1; Alaska Communications Comments at 8-11.

[14] *See* Alaska Communications Comments at 8-9 (*citing* ViaSat, Inc., Call Sign E110015, SES-LIC-20110211-00150,"FCC International Bureau Presentation" (Apr. 11, 2018), at 9 (ViaSat-1 Ka-band spot beam covering Anchorage), *available at:* https://licensing.fcc.gov/myibfs/download.do?attachment_key=910492.

[15] *Id.* at 9.

[16] *Id.* at 11. *See also* GCI Communication Corp. Request for Waiver of the Temporary Freeze on Applications for New or Modified Fixed Satellite Service Earth Stations in the 3.7-4.2 GHz Band, IBFS File No. SES-LIC-20180608-01392, Call Sign: E180787, Order, DA 19-725 (Int. Bur., rel. Aug. 1, 2019) (observing that "Ku- and Ka-band options are not realistic alternatives for technical reasons: specifically, due to limited lower link availability resulting from propagation conditions and the higher link margins required for Ku- or Ka-band fading").

Given the state's extreme northerly latitudes and harsh weather, the C-band thus offers better performance, availability, and coverage than other satellite spectrum bands, making it far superior to other spectrum for serving customers in Alaska. Over much of the year, dangerous and unpredictable conditions make it difficult at best for Alaska Communications network technicians to reach remote customer sites, making such service reliability a paramount concern.

Reliable communications are particularly important in the case of schools, libraries, and rural healthcare providers, which use services supported by the Commission's E-rate and RHC universal service support mechanisms for the benefit of rural and remote Alaskan communities. Alaska Communications uses C-band satellite earth stations to provide E-rate and RHC-supported services, including some that may be served using the earth stations proposed in this application.

More broadly, Alaska Communications' customers, which include a broad array of rural health care providers, the Federal Aviation Administration, other federal and state government entities, public safety first responders, Alaska native-owned economic development enterprises, among others, are well aware that C-band services are consistently more stable and perform more reliably than Ku- or Ka-band alternatives. As a result, ***these customers routinely insist that their services be provisioned using C-band connectivity, and will specifically choose C-band services over other options.***

C. Terrestrial "5G" Services Can Be Deployed in Alaska Using Existing Mobile Spectrum Allocations

In contrast to the importance of the 3.7-4.2 GHz spectrum for satellite communications, existing spectrum allocations provide sufficient capacity to support deployment of terrestrial mobile 5G services, such that no new allocation is needed. In large cities in the lower 48 states, population density may range into the tens of thousands of people per square mile. New York City, for example, has over 27,000 people per square mile, and over 69,000 people per square

mile in Manhattan. Alaska's small population and low population density stand in sharp contrast, with Anchorage, the most densely populated city in Alaska, having 171 people per square mile.[17]

Indeed, GCI recently became the first service provider to announce the introduction of 5G mobile wireless services in Alaska, announcing that it will do so by utilizing portions of its existing licensed spectrum in the 600MHz, 700MHz, and 850MHz, PCS, and AWS bands.[18] GCI, however, has remained steadfast in its opposition to reallocation of spectrum in the 3.7-4.2 GHz band to terrestrial mobile 5G use, as reflected in its comments in this proceeding,[19] providing critical evidence that additional spectrum allocations are not necessary to support 5G services in Alaska.

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[17] *See* United States Census Bureau, Quick Facts, *available at:* https://www.census.gov/quickfacts/fact/table/anchoragemunicipalityalaska,newyorkcitynewyork,newyorkcountymanhattanboroughnewyork/PST045218 (visited Aug. 6, 2019).

[18] *See, e.g.,* Press Release, GCI Liberty, "GCI Partners with Global Technology Leader Ericsson to Deliver First 5G Service to the Last Frontier," June 18, 2019 ("GCI controls 210 MHz (megahertz) of mobile radio spectrum in Anchorage, more than any other wireless provider including low-band 600MHz, 700MHz, and 850MHz spectrum, which is particularly useful for in-door coverage, and mid-band PCS and AWS spectrum. GCI's 5G NR deployment will take advantage of all five of these radio bands to ensure a superior experience for Anchorage residents."), *available at:* https://generalcommunicationinc-redesign.gcs-web.com/news-releases/news-release-details/gci-partners-global-technology-leader-ericsson-deliver-first-5g.

[19] *See, e.g.,* GCI Comments, GN Docket No. 18-122 (filed Oc.t 29, 2018), at 5-9.

Conclusion

For the foregoing reasons, the Commission should retain the existing allocation of the 3.7-4.2 GHz band for satellite downlink (space-to-Earth) operations in Alaska, excluding the state from any reallocation of this spectrum for use in providing terrestrial 5G mobile services.

Respectfully submitted,

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